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EXAMINER	
MOORE, KARLA A	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/724,002	YAMAZAKI ET AL.	
	Examiner	Art Unit	
	Karla Moore	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18 and 31-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18 and 31-52* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 November 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 13 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,319,321 to Hiraga et al. in view of U.S. Patent No. 4,405,487 to Harrah et al. and U.S. Patent No. 6,001,413 to Matsuura et al.

3. Hiraga et al. disclose a film deposition apparatus substantially as claimed in Figures 1-4, comprising: a stock chamber (1) for loading or unloading a substrate; a transferring chamber (200) including a mechanism (13) for transferring the substrate; a liquid phase film deposition chamber connected to said transferring chamber through a gate (11); and a calcining chamber (4). The apparatus may be used for depositing an electroluminescent material in the liquid phase (abstract and column 1, rows 15-16).

4. Although, the liquid phase film deposition chamber of Hiraga et al. is not provided with a mechanism for oxidizing an element belonging to Group 1 or 2 of the periodic table. It is noted that Hiraga et al. do teach that the liquid deposition must take place in a sealed vessel free of floating particles and/or contaminated gases, where the contaminant gases include oxygen molecules and water vapor (column 13, rows 51-52).

5. Harrah et al. teach the use of a moisture getter comprising a readily oxidizable metal (such as Mg, a Group 2 metal; column 2, row 68) in a closed container for the purpose of scavenging moisture (column 1, rows 11-14).

6. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a mechanism for oxidizing an element belonging to Group 1 or Group 2 of the periodic table in Hiraga et al. in order to scavenge moisture within chamber as taught by Harrah et al.

7. With respect to claim 31, which is drawn solely to an intended use of the apparatus, the courts have ruled--a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

8. Harrah et al. and Hiraga et al. disclose the invention substantially as claimed and as described above.

9. However, Harrah et al. and Hiraga et al. do not explicitly teach why one of ordinary skill in the art might combine two apparatus that to some may appear to individually provide solutions to a common problem.

10. Matsuura et al. teach that even when substrates are provided in a vacuum enclosure, over time contaminants and impurities may be introduced into the enclosure, thus causing failure or destabilization of the substrates (column 2, rows 17-35). Therefore, even if at some point in time the apparatus of Hiraga et al. is in a "clean" state, over time this state may become diminished. Thus, means for addressing the contaminants and/or impurities besides just providing a clean container at the outset would make sense.

11. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided the apparatus/closed container of Hiraga et al. with a mechanism for oxidizing an element belonging Group 1 or 2 of the periodic table in order to scavenge moisture from the chamber that may be introduced after time has lapsed as taught by Harrah et al. and Matsuura et al.

12. Claims 2 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraga et al., Harrah et al. and Matsuura et al. as applied to claims 1, 13 and 31above, and further in view of U.S. Patent No. 5,310,410 to Begin et al.

13. Hiraga et al., Harrah et al. and Matsuura et al. disclose the invention substantially as claimed and as described above.

14. However, Hiraga et al., Harrah et al. and Matsuura et al. fail to teach an apparatus wherein an inside of said transferring chamber is kept under a reduced pressure and a liquid phase film deposition chamber is kept under atmospheric pressure or in a pressurized state.

15. Begin et al. disclose a multi-chamber apparatus in Figures 1 and 4, wherein each of the chambers (including the transfer chambers) are kept at a pressure selected based upon the particular process to be performed in the chamber for the purpose of providing a system with increased flexibility (column 1, rows 52 through column 2, row 18; column 4, rows 15-35).

16. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided individual chambers with pressures selected based on the processes to be performed in Hiraga et al., Harrah et al. and Matsuura et al. in order to provided a system with increased flexibility as taught by Begin et al.

17. Claims 3 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraga et al., Harrah et al. and Matsuura et al. as applied to claims 1, 13 and 31 above, and further in view of U.S. Patent No. 3,931,789 to Kakei et al.

18. The Hiraga et al., Harrah et al. and Matsuura et al. disclose the invention substantially as claimed and as described above.

19. However, Hiraga et al., Harrah et al. and Matsuura et al. fail to teach that said calcining chamber is provided with a mechanism for turning said substrate upside down.

20. Kakei et al. disclose a heating chamber provided with a mechanism for turning a substrate upside down for the purpose of facilitating successive applications of thin film coating on opposite surfaces of substrates (abstract).

21. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a calcining (heating) chamber with a turning mechanism in Hiraga et al.,

Harrah et al. and Matsuura et al. in order to facilitate successive applications of thin film coating on opposite surfaces of substrates as taught by Kakei et al.

22. Claims 4 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,319,321 to Hiraga et al., in view of U.S. Patent No. 4,405,487 to Harrah et al., U.S. Patent No. 6,001,413 to Matsuura et al. and in view of U.S. Patent No. 6,149,392 to Conte.

23. Hiraga et al. disclose the invention substantially as claimed and comprising: a stock chamber (1) for loading or unloading a substrate; a transferring chamber (200) including a mechanism (13) for transferring the substrate; a liquid phase film deposition chamber connected to said transferring chamber through a gate (11); and a calcining chamber (4). The apparatus may be used for depositing an electroluminescent material.

24. Although, the liquid phase film deposition chamber of Hiraga et al. is not provided with a mechanism for oxidizing an element belonging to Group 1 or 2 of the periodic table. It is noted that Hiraga et al. do teach that the liquid deposition must take place in a sealed vessel free of floating particles and/or contaminated gases, where the contaminant gases include oxygen molecules and water vapor (column 13, rows 51-52).

25. Harrah et al. teach the use of a moisture getter comprising a readily oxidizable metal (such as Mg, a Group 2 metal; column 2, row 68) in a closed container for the purpose of scavenging moisture (column 1, rows 11-14).

26. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a mechanism for oxidizing an element belonging to Group 1 or Group 2 of the periodic table in Hiraga et al. in order to scavenge moisture within chamber as taught by Harrah et al.

27. Harrah et al. and Hiraga et al. disclose the invention substantially as claimed and as described above.

28. However, Harrah et al. and Hiraga et al. do not explicitly teach why one of ordinary skill in the art might combine two apparatus that to some may appear to individually provide solutions to a common problem.

29. Matsuura et al. teach that even when substrates are provided in a vacuum enclosure, over time contaminants and impurities may be introduced into the enclosure, thus causing failure or destabilization of the substrates (column 2, rows 17-35). Therefore, even if at some point in time the apparatus of Hiraga et al. is in a "clean" state, over time this state may become diminished. Thus, means for addressing the contaminants and/or impurities besides just providing a clean container at the outset would make sense.

30. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided the apparatus/closed container of Hiraga et al. with a mechanism for oxidizing an element belonging Group 1 or 2 of the periodic table in order to scavenge moisture from the chamber that may be introduced after time has lapsed as taught by Harrah et al. and Matsuura et al.

31. Hiraga et al., Harrah et al. and Matsuura et al. disclose the invention substantially as claimed and as described above.

32. However, Hiraga et al., Harrah et al. and Matsuura et al. fail to teach said oxidizing mechanism provided via a piping.

33. Conte discloses multiple chamber and getter (oxidizing mechanism) configurations in Figures 5-7, including a configuration where the getter is connected to the chamber via piping. Conte further discloses that ideally particles of getter material are prevented from moving through the chamber (column 5, rows 51-65).

34. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a getter connected to a chamber via piping in Hiraga et al., Harrah et al. and Matsuura et al. in order to prevent particles of getter material from moving through the chamber as taught by Conte.

35. With respect to claim 34, which is drawn solely to an intended use of the apparatus, the courts have ruled--a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the

prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987)

36. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraga et al., Harrah et al., Matsuura et al. and Conte as applied to claims 4 and 34 above, and further in view of U.S. Patent No. 5,310,410 to Begin et al.

37. Hiraga et al., Harrah et al., Matsuura et al. and Conte disclose the invention substantially as claimed and as described above.

38. However, Hiraga et al., Harrah et al., Matsuura et al. and Conte fail to teach an apparatus wherein an inside of said transferring chamber is kept under a reduced pressure and a liquid phase film deposition chamber is kept under atmospheric pressure or in a pressurized state.

39. Begin et al. disclose a multi-chamber apparatus in Figures 1 and 4, wherein each of the chambers (including the transfer chambers) are kept at a pressure selected based upon the particular process to be performed in the chamber for the purpose of providing a system with increased flexibility (column 1, rows 52 through column 2, row 18; column 4, rows 15-35).

40. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided individual chambers with pressures selected based on the processes to be performed in Hiraga et al., Harrah et al., Matsuura et al. and Conte in order to provided a system with increased flexibility as taught by Begin et al.

41. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraga et al., Harrah et al., Matsuura et al. and Conte as applied to claims 4 and 34 above, and further in view of U.S. Patent No. 3,931,789 to Kakei et al.

42. The Hiraga et al., Harrah et al., Matsuura et al. and Conte disclose the invention substantially as claimed and as described above.

43. However, Hiraga et al., Harrah et al., Matsuura et al. and Conte fail to teach that said calcining chamber is provided with a mechanism for turning said substrate upside down.

44. Kakei et al. disclose a heating chamber provided with a mechanism for turning a substrate upside down for the purpose of facilitating successive applications of thin film coating on opposite surfaces of substrates (abstract).

45. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a calcining (heating) chamber turning mechanism in Hiraga et al., Harrah et al., Matsuura et al. and Conte in order to facilitate successive applications of thin film coating on opposite surfaces of substrates as taught by Kakei et al.

46. Claims 7-8, 16-17 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,319,321 to Hiraga et al., in view of U.S. Patent No. 4,405,487 to Harrah et al., U.S. Patent No. 6,001,413 to Matsuura et al. and in view of U.S. Patent No. 5,310,410 to Begin et al.

47. With respect to claims 7 and 16, Hiraga et al. discloses the invention substantially as claimed and comprising: a stock chamber (1) for loading or unloading a substrate; a transferring chamber (200) including a mechanism (13) for transferring the substrate; a liquid phase film deposition chamber connected to said transferring chamber through a gate (11); and a calcining chamber (4). The apparatus may be used for depositing an electroluminescent material.

48. Although, the liquid phase film deposition chamber of Hiraga et al. is not provided with a mechanism for oxidizing an element belonging to Group 1 or 2 of the periodic table. It is noted that Hiraga et al. do teach that the liquid deposition must take place in a sealed vessel free of floating particles and/or contaminated gases, where the contaminant gases include oxygen molecules and water vapor (column 13, rows 51-52).

49. Harrah et al. teach the use of a moisture getter comprising a readily oxidizable metal (such as Mg, a Group 2 metal; column 2, row 68) in a closed container for the purpose of scavenging moisture (column 1, rows 11-14).

50. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a mechanism for oxidizing an element belonging to Group 1 or Group 2 of the periodic table in Hiraga et al. in order to scavenge moisture within chamber as taught by Harrah et al.

51. Harrah et al. and Hiraga et al. disclose the invention substantially as claimed and as described above.

52. However, Harrah et al. and Hiraga et al. do not explicitly teach why one of ordinary skill in the art might combine two apparatus that to some may appear to individually provide solutions to a common problem.

53. Matsuura et al. teach that even when substrates are provided in a vacuum enclosure, over time contaminants and impurities may be introduced into the enclosure, thus causing failure or destabilization of the substrates (column 2, rows 17-35). Therefore, even if at some point in time the apparatus of Hiraga et al. is in a "clean" state, over time this state may become diminished. Thus, means for addressing the contaminants and/or impurities besides just providing a clean container at the outset would make sense.

54. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided the apparatus/closed container of Hiraga et al. with a mechanism for oxidizing an element belonging Group 1 or 2 of the periodic table in order to scavenge moisture from the chamber that may be introduced after time has lapsed as taught by Harrah et al. and Matsuura et al.

55. As described above, Hiraga et al., Harrah et al. and Matsuura et al. disclose the invention substantially as claimed.

56. However Hiraga et al., Harrah et al. Matsuura et al. fail to disclose an additional transfer chamber connected through said stock chamber through a gate or a vapor phase film deposition chamber connected to one of said two transferring chambers through a gate.

57. Begin et al. disclose a multi-chamber apparatus comprising two transfer chambers (14) connected to a stock chamber (26, Figure 4) through a gate (32, Figure 1; 90) and a plurality of vapor deposition chambers/first chambers (38, 40, 42, 80, 82) in an arrangement for the purpose of providing greater flexibility in the types of operations performed (column 2, rows 28-43). Although, both of the

transfer chambers are not directly connected to the stock chamber through a single gate, they are connected through a gate.

58. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an additional transfer chamber and a vapor deposition chamber in Hiraga et al., Harrah et al. and Matsuura et al. in order to achieve an arrangement providing greater flexibility in the types of operations performed as taught by Begin et al.

59. With respect to claims 8 and 17, Hiraga et al., Harrah et al., Matsuura et al. and Begin et al. disclose a stock chamber, a transferring chamber and a liquid phase film deposition chamber provided with a mechanism for oxidizing an element belonging to Group 1 or 2 of the periodic table—as described above.

60. However, Hiraga et al. and Harrah et al. fail to teach an apparatus wherein an inside of said transferring chamber is kept under a reduced pressure and a liquid phase film deposition chamber is kept under atmospheric pressure or in a pressurized state.

61. Begin et al. disclose a multi-chamber apparatus in Figures 1 and 4, wherein each of the chambers (including the transfer chambers) are kept at a pressure selected based upon the particular process to be performed in the chamber for the purpose of providing a system with increased flexibility (column 1, rows 52 through column 2, row 18; column 4, rows 15-35).

62. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided individual chambers with pressures selected based on the processes to be performed in Hiraga et al., Harrah et al., Matsuura et al. and Begin et al. in order to provided a system with increased flexibility as taught by Begin et al.

63. With respect to claim 37, which is drawn solely to an intended use of the apparatus, the courts have ruled--a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the

prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987)

64. Claims 9 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraga et al., Harrah et al., Matsuura et al. and Begin et al. as applied to claims 7-8 and 16-17 and 37 above, and further in view of U.S. Patent No. 3,931,789 to Kakei et al.

65. Hiraga et al., Harrah et al., Matsuura et al. and Begin et al. disclose the invention substantially as claimed and as described above.

66. However, Hiraga et al., Harrah et al., Matsuura et al. and Begin et al. fail to teach that said calcining chamber is provided with a mechanism for turning said substrate upside down.

67. Kakei et al. disclose a heating chamber provided with a mechanism for turning a substrate upside down for the purpose of facilitating successive applications of thin film coating on opposite surfaces of substrates (abstract).

68. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a calcining (heating) chamber turning mechanism in Hiraga et al., Harrah et al., Matsuura et al. and Begin et al. in order to facilitate successive applications of thin film coating on opposite surfaces of substrates as taught by Kakei et al.

69. Claims 10-11 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,319,321 to Hiraga et al., in view of U.S. Patent No. 4,405;487 to Harrah et al., U.S. Patent No. 6,001,413 to Matsuura et al., U.S. Patent No. 5,310,410 to Begin et al. and U.S. Patent No. 6,149,392 to Conte.

70. With respect to claim 10, Hiraga et al. discloses the invention substantially as claimed and comprising: a stock chamber (1) for loading or unloading a substrate; a transferring chamber (200) including a mechanism (13) for transferring the substrate; a liquid phase film deposition chamber connected to said transferring chamber through a gate (11); and a calcining chamber (4). The apparatus may be used for depositing an electroluminescent material.

71. Although, the liquid phase film deposition chamber of Hiraga et al. is not provided with a mechanism for oxidizing an element belonging to Group 1 or 2 of the periodic table. It is noted that Hiraga et al. do teach that the liquid deposition must take place in a sealed vessel free of floating particles and/or contaminated gases, where the contaminant gases include oxygen molecules and water vapor (column 13, rows 51-52).

72. Harrah e et al. teach the use of a moisture getter comprising a readily oxidizable metal (such as Mg, a Group 2 metal; column 2, row 68) in a closed container for the purpose of scavenging moisture (column 1, rows 11-14).

73. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a mechanism for oxidizing an element belonging to Group 1 or Group 2 of the periodic table in Hiraga et al. in order to scavenge moisture within chamber as taught by Harrah et al.

74. Harrah et al. and Hiraga et al. disclose the invention substantially as claimed and as described above.

75. However, Harrah et al. and Hiraga et al. do not explicitly teach why one of ordinary skill in the art might combine two apparatus that to some may appear to individually provide solutions to a common problem.

76. Matsuura et al. teach that even when substrates are provided in a vacuum enclosure, over time contaminants and impurities may be introduced into the enclosure, thus causing failure or destabilization of the substrates (column 2, rows 17-35). Therefore, even if at some point in time the apparatus of Hiraga et al. is in a "clean" state, over time this state may become diminished. Thus, means for addressing the contaminants and/or impurities besides just providing a clean container at the outset would make sense.

77. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided the apparatus/closed container of Hiraga et al. with a mechanism for oxidizing an element belonging Group 1 or 2 of the periodic table in order to scavenge moisture from the chamber that may be introduced after time has lapsed as taught by Harrah et al. and Matsuura et al.

78. Hiraga et al., Harrah et al. and Matsuura et al. disclose the invention substantially as claimed and as described above.

79. However, Hiraga et al., Harrah et al. and Matsuura et al. fail to disclose an additional transfer chamber connected through said stock chamber through a gate or a vapor phase film deposition chamber connected to one of said two transferring chambers through a gate.

80. Begin et al. disclose a multi-chamber apparatus comprising two transfer chambers (14) connected to a stock chamber (26, Figure 4) through a gate (32, Figure 1; 90) and a plurality of vapor deposition chambers/first chambers (38, 40, 42, 80, 82) in an arrangement for the purpose of providing greater flexibility in the types of operations performed (column 2, rows 28-43). Although, both of the transfer chambers are not directly connected to the stock chamber through a single gate, they are connected through a gate.

81. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an additional transfer chamber and a vapor deposition chamber in Hiraga et al., Harrah et al. and Matsuura et al. in order to achieve an arrangement providing greater flexibility in the types of operations performed as taught by Begin et al.

82. Hiraga et al., Harrah et al., Matsuura et al. and Begin et al. disclose the invention substantially as claimed.

83. However, Hiraga et al., Harrah et al., Matsuura et al. and Begin et al. fail to teach said oxidizing mechanism provided via a piping.

84. Conte discloses multiple chamber and getter (oxidizing mechanism) configurations in Figures 5-7, including a configuration where the getter is connected to the chamber via piping. Conte further discloses that ideally particles of getter material are prevented from moving through the chamber (column 5, rows 51-65).

85. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a getter connected to a chamber via piping Harrah et al. in Hiraga et al.,

Harrah et al., Matsuura et al. and Begin et al. in order to prevent particles of getter material from moving through the chamber as taught by Conte.

86. With respect to claim 11, Begin et al. disclose a multi-chamber apparatus in Figures 1 and 4, wherein each of the chambers (including the transfer chambers) are kept at a pressure selected based upon the particular process to be performed in the chamber for the purpose of providing a system with increased flexibility (column 1, rows 52 through column 2, row 18; column 4, rows 15-35).

87. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided individual chambers with pressures selected based on the processes to be performed in order to provided a system with increased flexibility as taught by Begin et al.

88. With respect to claim 40, which is drawn solely to an intended use of the apparatus, the courts have ruled--a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

89. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraga et al., Harrah et al., Matsuura et al. Begin et al. and Conte as applied to claims 10, 11 and 40 above, and further in view of U.S. Patent No. 3,931,789 to Kakei et al.

90. Hiraga et al., Harrah et al., Matsuura et al. Begin et al. and Conte disclose the invention substantially as claimed and as described above.

91. However, Hiraga et al., Harrah et al., Matsuura et al. Begin et al. and Conte fail to teach that said calcining chamber is provided with a mechanism for turning said substrate upside down.

92. Kakei et al. disclose a heating chamber provided with a mechanism for turning a substrate upside down for the purpose of facilitating successive applications of thin film coating on opposite surfaces of substrates (abstract).

93. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a calcining (heating) chamber turning mechanism in Hiraga et al., Harrah et al., Matsuura et al. Begin et al. and Conte in order to facilitate successive applications of thin film coating on opposite surfaces of substrates as taught by Kakei et al.

94. Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraga et al., Harrah et al. and Matsuura et al. as applied to claims 1, 13 and 31 above, and further in view of U.S. Patent No. 6,124,215 to Zheng.

95. Hiraga et al., Harrah et al. and Matsuura et al. disclose the invention substantially as claimed and as described above.

96. However Hiraga et al., Harrah et al. and Matsuura et al. fail to teach the liquid phase deposition chamber provided with a spin coater and a nozzle for forming a layer.

97. Zheng teaches the use of a spin coater for the purpose of dispersing material onto the surface of a wafer substrate (column 2, rows 39-41) and a nozzle (Figure 1, 20) for the purpose of dispensing material onto the surface of the wafer substrate (column 3, rows 52-57).

98. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a spin coater in Hiraga et al. in order to disperse material onto the surface of a wafer surface of a wafer substrate and to have provided a nozzle in Hiraga et al., Harrah et al. and Matsuura et al. in order to dispense material onto the surface of the wafer substrate as taught by Zheng.

99. Claims 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraga et al., Harrah et al. Matsuura et al. and Conte as applied to claims 4 and 34 above, and further in view of U.S. Patent No. 6,124,215 to Zheng.

100. Hiraga et al., Harrah et al. Matsuura et al. and Conte disclose the invention substantially as claimed and as described above.

101. However, Hiraga et al., Harrah et al. Matsuura et al. and Conte fail to teach the liquid phase deposition chamber provided with a spin coater and a nozzle for forming a layer.

102. Zheng teaches the use of a spin coater for the purpose of dispersing material onto the surface of a wafer substrate (column 2, rows 39-41) and a nozzle (Figure 1, 20) for the purpose of dispensing material onto the surface of the wafer substrate (column 3, rows 52-57).

103. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a spin coater in Hiraga et al., Harrah et al. Matsuura et al. and Conte in order to disperse material onto the surface of a wafer surface of a wafer substrate and to have provided a nozzle Hiraga et al., Harrah et al. Matsuura et al. and Conte in order to dispense material onto the surface of the wafer substrate as taught by Zheng.

104. Claims 38-39 and 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraga et al., Harrah et al., Matsuura et al. and Begin et al. as applied to claims 7-8, 16-17 and 37 above, and further in view of U.S. Patent No. 6,124,215 to Zheng.

105. Hiraga et al., Harrah et al., Matsuura et al. and Begin et al. disclose the invention substantially as claimed and as described above.

106. However, Hiraga et al., Harrah et al., Matsuura et al. and Begin et al. fail to teach the liquid phase deposition chamber provided with a spin coater and a nozzle for forming a layer.

107. Zheng teaches the use of a spin coater for the purpose of dispersing material onto the surface of a wafer substrate (column 2, rows 39-41) and a nozzle (Figure 1, 20) for the purpose of dispensing material onto the surface of the wafer substrate (column 3, rows 52-57).

108. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a spin coater Hiraga et al., Harrah et al., Matsuura et al. and Begin et al. in order to disperse material onto the surface of a wafer surface of a wafer substrate and to have provided a nozzle in Hiraga et al., Harrah et al., Matsuura et al. and Begin et al. in order to dispense material onto the surface of the wafer substrate as taught by Zheng.

109. Claims 41 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraga et al., Harrah et al., Matsuura et al. Begin et al. and Conte as applied to claims 10-11 and 40 above, and further in view of U.S. Patent No. 6,124,215 to Zheng.

110. Hiraga et al., Harrah et al., Matsuura et al. Begin et al. and Conte disclose the invention substantially as claimed and as described above.

111. However, Hiraga et al., Harrah et al., Matsuura et al. Begin et al. and Conte fail to teach the liquid phase deposition chamber provided with a spin coater and a nozzle for forming a layer.

112. Zheng teaches the use of a spin coater for the purpose of dispersing material onto the surface of a wafer substrate (column 2, rows 39-41) and a nozzle (Figure 1, 20) for the purpose of dispensing material onto the surface of the wafer substrate (column 3, rows 52-57).

113. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a spin coater in Hiraga et al., Harrah et al., Matsuura et al. Begin et al. and Conte in order to disperse material onto the surface of a wafer surface of a wafer substrate and to have provided a nozzle in Hiraga et al., Harrah et al., Matsuura et al. Begin et al. and Conte in order to dispense material onto the surface of the wafer substrate as taught by Zheng.

114. Claims 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraga et al., Harrah et al. and Matsuura et al. as applied to claims 1, 13 and 31 above, and further in view of U.S. Patent No. 6,124,215 to Zheng.

115. Hiraga et al., Harrah et al. and Matsuura et al. disclose the invention substantially as claimed and as described above.

116. However, Hiraga et al., Harrah et al. and Matsuura et al.fail to teach the liquid phase deposition chamber provided with a spin coater and a nozzle for forming a layer.

117. Zheng teaches the use of a spin coater for the purpose of dispersing material onto the surface of a wafer substrate (column 2, rows 39-41) and a nozzle (Figure 1, 20) for the purpose of dispensing material onto the surface of the wafer substrate (column 3, rows 52-57).

118. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a spin coater in Hiraga et al., Harrah et al. and Matsuura et al. in order to disperse material onto the surface of a wafer surface of a wafer substrate and to have provided a nozzle in Hiraga et al., Harrah et al. and Matsuura et al. in order to dispense material onto the surface of the wafer substrate as taught by Zheng.

119. Claims 47 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraga et al., Harrah et al. and Matsuura et al. as applied to claims 1, 13 and 31 above, and further in view of U.S. Patent No. 4,225,805 to Smithgall et al.

120. Hiraga et al., Harrah et al. and Matsuura et al. disclose the invention substantially as claimed and as described above.

121. However, Hiraga et al., Harrah et al. and Matsuura et al. fail to teach the mechanism/cell, for oxidizing an element belonging to Group 1 or 2 of the periodic table, comprising a lid.

122. Smithgall et al. teach the use of a getter with a lid (protective seal/cover) inside a vacuum container for the purpose of preventing premature exposure/deterioration of the getter material (column 5, rows 7-14).

123. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a getter with a lid in Hiraga et al., Harrah et al. and Matsuura et al. in order to prevent premature exposure/deterioration of the getter material as taught by Smithgall et al.

124. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraga et al., Harrah et al., Matsuura et al. and Conte as applied to claims 4 and 34 above, and further in view of U.S. Patent No. 4,225,805 to Smithgall et al.

125. Hiraga et al., Harrah et al., Matsuura et al. and Conte disclose the invention substantially as claimed and as described above.

126. However, Hiraga et al., Harrah et al., Matsuura et al. and Conte fail to teach the mechanism/cell, for oxidizing an element belonging to Group 1 or 2 of the periodic table, comprising a lid.

127. Smithgall et al. teach the use of a getter with a lid (protective seal/cover) inside a vacuum container for the purpose of preventing premature exposure/deterioration of the getter material (column 5, rows 7-14).

128. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a getter with a lid in Hiraga et al., Harrah et al., Matsuura et al. and Conte in order to prevent premature exposure/deterioration of the getter material as taught by Smithgall et al.

129. Claims 49 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraga et al., Harrah et al., Matsuura et al. and Begin et al. as applied to claims 7-8, 16-17, and 37 above, and further in view of U.S. Patent No. 4,225,805 to Smithgall et al.

130. Hiraga et al., Harrah et al., Matsuura et al. and Begin et al. disclose the invention substantially as claimed and as described above.

131. However, Hiraga et al., Harrah et al., Matsuura et al. and Begin et al. fail to teach the mechanism/cell, for oxidizing an element belonging to Group 1 or 2 of the periodic table, comprising a lid.

132. Smithgall et al. teach the use of a getter with a lid (protective seal/cover) inside a vacuum container for the purpose of preventing premature exposure/deterioration of the getter material (column 5, rows 7-14).

133. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a getter with a lid in Hiraga et al., Harrah et al., Matsuura et al. and Begin et al. in order to prevent premature exposure/deterioration of the getter material as taught by Smithgall et al.

134. Claim 50 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hiraga et al., Harrah et al., Matsuura et al., Begin et al. and Conte as applied to claims 10-11 and 40 above, and further in view of U.S. Patent No. 4,225,805 to Smithgall et al.

135. Hiraga et al., Harrah et al., Matsuura et al., Begin et al. and Conte disclose the invention substantially as claimed and as described above.

136. However, Hiraga et al., Harrah et al., Matsuura et al., Begin et al. and Conte fail to teach the mechanism/cell, for oxidizing an element belonging to Group 1 or 2 of the periodic table, comprising a lid.

137. Smithgall et al. teach the use of a getter with a lid (protective seal/cover) inside a vacuum container for the purpose of preventing premature exposure/deterioration of the getter material (column 5, rows 7-14).

138. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a getter with a lid in Hiraga et al., Harrah et al., Matsuura et al., Begin et al. and Conte in order to prevent premature exposure/deterioration of the getter material as taught by Smithgall et al.

Response to Arguments

139. The arguments provided in the submission filed 4/4/05 have been considered and a referenence which more explicitly teaches why one of ordinary skill in the are would be motivated to combine Hiraga et al. and Harrah et al. which both teach different ways for providing a clean atmosphere for substrate processing.

140. Further, in response to applicant's arguments (at claim 4) against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Applicant argues that Conte fails to disclose or suggest oxidizing an element belonging to Group 1 or Group 2 of the periodic table; however, Examiner points out that the reference is used in combination with other with supply the teachings perceived to be undisclosed.

141. Also with respect to Applicant's arguments that Begin fails to teach "an inside of a transferring chamber kept under a reduced pressure and the film deposition chamber filled with an inert gas and kept under atmospheric pressure of in a pressurized state, as noted in the previous office action Begin teaches that the chambers can be kept at the desired pressures as dictated by processing methods.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Karla Moore
Patent Examiner
Art Unit 1763
11 July 2005